

Application No. 10/810,183
Response to Office Action

Customer No. 01933

Listing of Claims:

Claims 1-15 (Canceled).

16. (New) A microscope comprising:

a light source which illuminates a specimen;

an objective located opposite to the specimen;

a field stop projection lens, located on an illumination

5 axis between the light source and the objective, to narrow a
field of view of the specimen;

a digital micromirror device which is conjugate with the
specimen via the field stop projection lens and the objective,
and which comprises a plurality of two-dimensionally arrayed
10 micromirrors that are individually selectable to be turned on so
as to reflect light along the illumination axis to the specimen;

a reflection mirror which reflects illumination light from
the light source onto the digital micromirror device;

a shutter;

15 a dichroic mirror which is located on an observation axis of
the objective so as to reflect the illumination light emitted
from the light source onto the objective and to pass observation
light from the objective;

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an excitation filter which selectively passes light
20 components of the illumination light that are suitable for
excitation of a fluorescent material in the specimen;
an absorption filter which selectively absorbs light
components of the observation light;
a camera located on the observation axis to pick up an
25 observation image;
a monitor which displays the image picked up by the camera;
a drive controller which controls the digital micromirror
device and the shutter; and
a computer which controls the drive controller, camera and
30 monitor such that:

before picking up an image of the specimen, all of the
micromirrors are turned on while the shutter is closed, and the
shutter is opened to cause the illumination light to be guided to
the specimen via the turned-on micromirrors, such that an image
35 of a part of the specimen that is located within the field of
view is picked up by the camera, and wherein the shutter is
closed after an image pick-up operation of the camera ends;

the image picked up by the camera is displayed by the
monitor, an irradiation area to be irradiated with the
40 illumination light is specified, and respective ones of the
micromirrors which correspond to the specified irradiation area
are specified; and

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before picking up an image of the sample again, only
the specified ones of the micromirrors are turned on while the
45 shutter is closed, and the shutter is opened to cause the
illumination light to be guided to the specimen via the turned-on
micromirrors, such that another image of the part of the specimen
that is located within the field of view is picked up by the
camera, and wherein the shutter is closed after the image pick-up
50 operation of the camera ends.

17. (New) The microscope according to claim 16, wherein the
shutter is located between the light source and the reflection
mirror.

18. (New) The microscope according to claim 16, wherein the
shutter is located between the digital micromirror device and the
field stop projection lens.

19. (New) A microscope comprising:
a light source which illuminates a specimen;
an objective located opposite to the specimen;
a field stop projection lens, located on an illumination
5 axis between the light source and the objective, to narrow a
field of view of the specimen;

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a digital micromirror device which is conjugate with the specimen via the field stop projection lens and the objective, and which comprises a plurality of two-dimensionally arrayed micromirrors that are individually selectable to be turned on so as to reflect light along the illumination axis to the specimen;

a reflection mirror which reflects illumination light from the light source onto the digital micromirror device;

a shutter;

a dichroic mirror, which is located on an observation axis of the objective so as to reflect the illumination light emitted from the light source onto the objective and to pass observation light from the objective;

an excitation filter, which selectively passes light components of the illumination light that are suitable for excitation of a fluorescent material in the specimen;

an absorption filter which selectively absorbs light components of the observation light;

a camera located on the observation axis to pick up an observation image;

a drive controller which controls the digital micromirror device and the shutter; and

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a computer which controls the drive controller such that:
before picking up an image of the specimen, desired
30 ones of the micromirrors are turned on while the shutter is
closed, and the shutter is opened to cause the illumination light
to be guided to the specimen via the turned-on micromirrors, and
wherein the shutter is closed after an image pick-up operation of
the camera ends, to cut off stray light from ones of the
35 micromirrors that are not turned on.

20. (New) The microscope according to claim 19, wherein the
shutter is located between the light source and the reflection
mirror.

21. (New) The microscope according to claim 19, wherein the
shutter is located between the digital micromirror device and the
field stop projection lens.